

Current issues in the design of academic health sciences libraries: findings from three recent facility projects*

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Planning a new health sciences library at the beginning of the twenty-first century is a tremendous challenge. Technology has radically changed the way libraries function in an academic environment and the services they provide. Some individuals question whether the library as place will continue to exist as information becomes increasingly available electronically. To understand how libraries resolve programming and building design issues, visits were made to three academic health sciences libraries that have had significant renovation or completed new construction. The information gathered will be valuable for planning a new library for the University of Colorado Health Sciences Center and may assist other health sciences librarians as they plan future library buildings.

REMEMBER WHEN?

The library was a place for serious study and quiet reflection. Words spoken above a whisper resulted in raised eyebrows. The card catalog was an arcane system to be mastered to find needed information. Massive volumes of the *Cumulated Index Medicus* were the entree to the journal literature. Literature searches were performed only by librarians with special knowledge of MEDLINE. One-on-one reference assistance with research problems was the norm. Rows of book stacks held materials that could be browsed with the hope of a serendipitous discovery. "The ideal library was a big building with large holdings" [1].

The academic health sciences library of the twenty-first century is a remarkably different place. In a relatively short period of time, technology has changed libraries from quiet ivory towers to bustling activity centers. The curriculum focuses on group learning, resulting in increased noise levels and demand for group learning spaces. Rows of computers now occupy prime public space where the card catalog once lived. Computer-literate library users perform their own literature searches on the Internet and on databases licensed by the library. Students still come to the library for assistance and a quiet place to study, but decreasing gate counts since 1998 [2] may indicate that faculty are visiting less and accessing electronic information from remote locations. As changes in technology ac-

celerate, classes and group learning sessions have become essential means of educating library users.

The remarkable thing is that these dramatic changes in library use have taken place in a relatively short period of time. Change is now a constant feature of the high-tech world we live in. This change is clearly pointed out in an excellent chapter titled "Planning for Health Sciences Library Facilities" by Weise and Tooley [3]. The ability to foresee where change will take us in the next twenty years is critical to planning the health sciences library of the future.

The University of Colorado Health Sciences Center (UCHSC) is moving to an entirely new campus over the next ten years, and plans for a new library are a part of this transition. Funding from the Medical Library Association David A. Kronick Traveling Fellowship provided an opportunity for the author to visit two health sciences libraries with significant recent renovations and one library with entirely new construction. The information gathered from these visits was summarized in a project report to the Medical Library Association. In addition to assisting the planning process for the new UCHSC library, these observations may be useful for other health sciences libraries that are anticipating new building projects.

The visited libraries were the Claude Moore Health Sciences Library at the University of Virginia Health System in Charlottesville, the Health Sciences Library at the University of North Carolina at Chapel Hill (UNC), and the Edward E. Brickell Medical Sciences Library at Eastern Virginia Medical School in Norfolk. These academic libraries represented different stages of renovation and new construction. The Claude Moore

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Health Sciences Library completed a significant renovation project in 2000. The Health Sciences Library at UNC has just begun extensive renovation with expected completion in August 2004. The new Brickell Medical Sciences Library at Eastern Virginia Medical School was dedicated in May 2000. Directors of two of the libraries were interviewed in 2000 by Ludwig, *Journal of the Medical Library Association* building projects editor [4].

Every library building project is unique in terms of how the health sciences library functions relative to other academic libraries in the institution, the mix of funding sources available, the political climate on campus, the site available for expansion or new construction, and the programmatic issues to be addressed. Observations described in this paper are, by choice, mostly of a general nature rather than the more detailed descriptive data associated with a specific project. The desire to respect the confidentiality of respondents also influenced the decision to report in more general terms.

Staff at each library provided a warm welcome and a wealth of information. Problems specific to each building and campus determined priorities for remodeling and new construction. At the Claude Moore Health Sciences Library, a twenty-five year old building was showing its age. Upgrades to the physical environment included new carpet, lighting, furniture, a technology infrastructure, and study spaces. The result is a gracious, welcoming atmosphere with generous staff space, excellent signage, and an outstanding history of medicine room. The feel of an elegant traditional library blends well with flexible space and new technology.

A similar goal at the Health Sciences Library at UNC is to create a flexible, inviting, and technologically advanced library. The existing building will be renovated from top to bottom over a period of two years. A single service point on the first floor has been tested and will be incorporated into the new design. Adding a second entrance that faces a major street will give the building greater visibility on campus. Group project space for staff and a large new conference suite are planned.

The Edward E. Brickell Medical Sciences Library at Eastern Virginia Medical School has been planned and constructed in a very tight time-frame. The impressive rotunda entrance is shared with an older medical school building that adjoins the library. Extensive network connections, a thoughtful blend of quiet and group study areas, and two electronic classrooms provide comfortable space for students, medical faculty, and community health professionals. A large videoconference room and new history of medicine room in close proximity blend old and new very tastefully.

The visited libraries exemplify various solutions to issues that all health sciences libraries confront as they plan future facilities. Following are some key issues, observations, and suggestions based on these three cases.

THE BALANCE BETWEEN PRINT AND ELECTRONIC RESOURCES

The amount and type of stack space needed for print material and the connectivity required for electronic access will be determined by the projected local balance between print and electronic resources. Because some users believe that everything is available electronically, administrators and legislators may see no need to continue to store print materials, resulting in pressure to decrease the size of new library buildings. While librarians know that the picture is not this simple, it is also clear that the need for stack space is decreasing as more resources become available electronically. A *Library Journal* article by Van Orsdel and Born shows "evidence that many librarians are ready to give up paper for good" [5] and discusses flip pricing or the desire for online plus print, rather than print plus online. As this change is underway, it is critical to realistically project the growth of print collections to plan the proper amount of stack space. Likewise, as more audiovisual materials are digitized, space requirements are decreasing.

Keep space flexible, so that stacks can be removed and the space repurposed. This flexibility may mean not bolting stacks to the floor. Consider putting newer print materials on open shelves and older parts of the collection in compact shelving if floor loads permit. If a new building is planned, another option for compact storage onsite is a robotic automated library retrieval system of the type in use at Eastern Michigan University, University of Nevada, Las Vegas, and Sonoma State University [6]. Offsite depository storage is also an option for older print material in some locales.

IMPLEMENTATION OF NEW TECHNOLOGY

New technology is probably the most important issue in planning future space and the hardest to deal with. When one considers how much libraries have changed in the past twenty years, projecting how new technologies will affect the library in the next twenty years feels like crystal ball gazing. The standard textbook for planning academic library buildings, *Planning Academic and Research Library Buildings*, third edition, published in 1999, feels surprisingly out of date, particularly when the author comments that new technology has so far seemed to have little effect on growth rates of library collections [7]. It is hard to imagine that this is the case in academic health sciences libraries. A more up-to-date resource for technology planning is *Academic Libraries as High-Tech Gateways: A Guide to Design and Space Decisions*, second edition, by Bazillion and Braun [8].

The use of wireless technology is increasing rapidly with parallel obsolescence of standards and hardware. Personal digital assistants (PDAs) are becoming commonplace tools for medical students, residents, and clinicians, and, in some cases, they are required by health professions schools. Libraries should consider what role they want to play in educating PDA users and

whether they will provide links to content. Hot sync stations and printing capability are increasingly in demand. The extent of wireless use on campus is likely to influence the amount of wireless use in the library, so it is important to track campus technology planning.

The number of network connections planned must take into account both the balance with wireless access and the mechanism for keeping the connections active. If this expense must be borne by the library budget, will continued financial support be available? Computers for staff and for public use must be continually upgraded, and this expense must also be factored into the budget. Deactivated jacks and outdated computers may result from overoptimistic planning. As more users bring their own notebook computers to the library, the number of public computer workstations required may diminish. In general, a combination of wireless and hard-wired infrastructure is likely to offer the most flexibility to accommodate future changes.

A digital media center seems likely to play an important role in the library's future. New technology is needed for digitized course materials, large databases, streaming video, graphics workstations, scanning equipment, and even virtual reality learning tools. Videoconferencing capability is also in demand, and libraries are planning space for this activity in new and renovated facilities. The library may wish to make technologically advanced learning resources available if they are not provided by another campus unit.

The challenge of seeing into the future and planning for new technology is daunting. If funding is available, hiring a technology consultant can assist library staff with technology-planning details and life-cycle costs.

DEMAND FOR VARIOUS TYPES OF STUDY SPACE

More group study space is needed to accommodate current learning styles, but individual study spaces remain important. Noisy spaces and quiet spaces must be carefully planned, so that these activities do not conflict. Informal comments indicate that group interaction and computer stations have increased noise levels in almost all health sciences libraries, elevating the issue of noise control in planning. A mix of tables, carrels, and comfortable lounge seats, some with writing boards and network connections, is worth considering. Study rooms with glass provide a sound barrier but maintain visibility.

Students want twenty-four-hours-a-day, seven-days-a-week access to health sciences libraries for study and online access, especially if this type of space is not available elsewhere on campus. If possible, some space should be designed that can be closed off from the rest of the library building after regular hours.

Windows are very important because most people crave natural light for study. Improved glass coatings are now available that reduce the amount of harmful ultraviolet light reaching the building interior. If study

space can be arranged at the outer edges of the building, print collections can move to center space.

LIBRARY SERVICES

The rapid changes in technology and increased availability of electronic resources described above have resulted in changes to library services. Many libraries are seeing new demands for instruction as technology becomes more complex. Librarians are teaching more educational programs in evidence-based medicine, informatics, and critical evaluation skills, in some cases as part of the formal curriculum. If existing classroom space is not adequate on campus, this may be an important item on the library space planning agenda. The technology needed to deliver high-quality instruction also affects new infrastructure planning.

Reference questions are increasingly related to supporting technology and may be less research oriented. High on the list are questions about how to connect faculty, student, and staff computers for remote access. This requires librarians and staff have in-depth understanding of computer technology, including set-up for proxy server access from a variety of hardware and software configurations and Internet browsers. The level of expertise needed to answer these and other technology-related questions at public service points in the library, on the telephone, by email, and now in virtual reference environments has changed the nature of the reference encounter and may have an impact on planning for physical space. It is useful to have reference assistance available close to library computer workstations, but noise from discussions in the reference and computer area may disturb users nearby. Planning in advance to mask sound in busy public areas may avoid later problems.

Combined service desks have the potential to offer more convenient, one-stop shopping for library patrons and to reduce staffing demands, particularly during evenings and weekends, but this cultural change can mean stress for staff. If a combined service desk is anticipated, a trial period might be useful to increase the comfort level of combined departments.

An article in the *Chronicle of Higher Education* titled "The Deserted Library" [9] reports that general academic libraries are seeing declining gate counts and book circulations. Health sciences libraries are seeing these declines as well [10]. If fewer people actually come to the library, this may affect the number of study seats needed as well as the number of hours the library is open. Review of statistics and careful observation are needed to identify trends in individual libraries and to determine how these trends will affect future space planning.

IDENTIFICATION OF THE LIBRARY'S PRIMARY USER GROUP

As online access increases and fewer people come physically to the library, who are the library's primary onsite users? A 2002 report by the Council on

Library & Information Resources and the Digital Library Federation [11] shows that faculty in the sciences are choosing to access electronic journals and databases from home or office and are visiting the library less frequently. Clinicians and health professionals in training at many institutions are turning to information accessible on their PDAs. A quick scan of occupied library seats may show that students are the most visible library users. If these trends are common to most health sciences library environments, what are the implications for future space planning? Students may appreciate social space in the library, particularly if this type of space is not available elsewhere on campus. Many newer libraries are meeting this need by incorporating a cybercafe or vending area, possibly operated under contract by an independent vendor.

SERVICES FOR UNAFFILIATED LIBRARY USERS

As the demand for consumer health information increases, the general public may represent a larger proportion of library users. Planning may involve decisions on the number of computers available for public use, the location of the computers, and the range of resources provided. It may be necessary to restrict public access by using passwords if computer seats are in high demand by primary library users.

A desire for privacy to discuss patient health information needs might also suggest a special area for consumers where they can talk to a librarian and have access to Web resources and print materials. With good planning and support, the academic health sciences library can play a vital role in providing easy access to health information for the local community.

VALUE OF HISTORICAL COLLECTIONS

Decisions regarding the future of historical collections may arise at the time new space is planned. In spite of, or perhaps because of, the increasing use of technology in health sciences libraries, history of medicine or rare book collections may be accorded new space and new prominence. Access to the same electronic journals, the same database sets, and the same instructional resources has resulted in similar, homogenized academic health sciences libraries, and it is worth speculating on how distinct library identities will be achieved in the future. Perhaps historical collections, rare books, and primary source materials will provide unique identities. These materials have special appeal for older faculty members and community health professionals who can be advocates for the library. A well-planned history of medicine or rare book area might include special temperature and humidity controls to preserve collections and a reading or conference area that can be used for special events and programs that appeal to library donors and supporters.

ADDITIONAL OBSERVATIONS

Directional assistance

When visitors walk into the library, they should immediately see where to go for desired service. Visual orientation and good signage are essential and should be planned as carefully as building spaces. A graphic interface such as an information kiosk is useful to orient people to parts of the building beyond immediate view.

Staff workspace

Service is of primary importance in health sciences libraries, and future staff spaces may be configured differently than in the past. Consideration should be given to locating staff offices close to the public service areas they support rather than grouping all staff offices in one place. Group work areas or collaboratories allow staff to work on special projects and provide a place for department meetings.

Project planning and implementation

When approval is received to plan new library space, hiring a consultant experienced in building academic health sciences libraries may be wise. Consultants with public or general academic library experience may not be familiar with the special needs and specific issues of a health sciences library. An experienced consultant not affiliated with the institution can offer new opinions, mediate different points of view, and act as an advocate for the library when differing opinions threaten to stall the planning project.

Assigning an administrative staff person to act as the library liaison for the life of the building project may be useful. This person should be present at all meetings with institutional project managers, architects, and contractors to track progress, understand problems, smooth administrative communications, keep an eye on the budget, and give regular updates on construction progress. The ability to read and understand architects' drawings and knowledge of construction terminology are very important for reviewing and understanding building plans.

Knowledge of the construction project should be dispersed to all staff. They will need to understand and be able to explain the project. They should be encouraged to focus on details, particularly on the spaces to be used by their departments, to avoid disappointments when construction is complete. Construction helmets should be provided, and staff should be given tours during the project.

If staffing permits, a Website on construction plans and progress should be created and kept current. This is a good way to keep library staff and the institution informed, and it gets the word out to a broader audience, including prospective donors.

Green building design

To date, little attention has been paid to "green building" design in health sciences libraries. This may be

because the number of new buildings is small, and these principles may apply only marginally to building renovations. It is desirable for more environmentally sensitive buildings to be the rule and not the exception. Leadership in Energy & Environmental Design (LEED) certification and green design costs are worth discussing when architects and contractors are hired. The reward for this designation may be good publicity, and environmental sensitivity may attract potential donors.

Funding

Library building projects often have a variety of funding sources. State institutions have a different set of hurdles than private institutions. With few exceptions, funding approval is a long and arduous process. It is very helpful to cultivate an administrator of the university who will act as a champion for the library and "sell" the library building project to state legislators and private donors. Even if the library is eligible for state funding, there is a good chance that private fundraising will be part of the funding equation, especially in tight times for state budgets. If the library is fortunate enough to have a development person on staff or assigned by the campus development office, this person will play a key role in finding major donor prospects for the library project. Naming opportunities abound for new or renovated space and for new programs.

SUMMARY

A 2001 article in the *Chronicle of Higher Education* titled "Do Libraries Really Need Books?" [12] describes controversial building projects at some general academic libraries. The tension between planning for new technology and maintaining the print tradition affects health sciences libraries as well. An increase in use of technology is apparent in all of the libraries visited for the Kronick fellowship. Each of the libraries reflects a balance of new technology with print and a sense of the "library as place." A strong rationale for the library as a physical space is found in a 2002 article by Miller, library director at Florida Atlantic University [13]. Good planning and design can create libraries with a sense of tradition as well as a place where information is available at users' fingertips.

Some of the questions posed in this article are being addressed in a delphi study of the library as place to be conducted by Ludwig and Starr during the spring

of 2003. Results of this study will help to achieve consensus on important issues facing academic health sciences libraries as they plan future library space.

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